

Storm Data and Unusual Weather Phenomena - July 2009

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
WISCONSIN, Southeast				
(WI-Z063) DANE				
	07/10/09 06:30 CST	1	15K	Strong Wind (MAX 43 kt)
	07/10/09 07:30 CST		0	
<p>A thunderstorm complex moved west to east across far southern Wisconsin and a "wake-low" developed on its northwest side. Strong gusty winds of 35 to 43 knots (40 to 50 mph) were generated in the tight surface pressure gradient. There was no indication that lightning or thunder were observed or heard, therefore, this event was classified as a "strong wind" event.</p>				
Direct Fatalities: M46VE				
DANE COUNTY --- (MSN)TRUAX FLD MADIS [43.13, -89.33], 2.5 S EAST BRISTOL [43.23, -89.15]				
	07/11/09 01:15 CST		0.13M	Hail (1.50 in)
	07/11/09 01:25 CST		0	Source: Official NWS Observations
<p>A severe thunderstorm produced large hail up to 1.5 inches that fell in a 3-mile wide swath that extended for 13 miles from Dane County Regional Airport (KMSN) to 6 miles northeast of Sun Prairie. Locally, the hail duration lasted about 5 minute based on eye-witness accounts. At least 12 cars were damaged with broken windows and dents. One severe weather spotter reported minor damage to his home's siding and door, so it is assumed that several homes were damaged, and probably more than 12 vehicles were damage. The loss estimated takes this assumption into account.</p>				
<p>A cold front pushing through southern Wisconsin triggered thunderstorms along and behind the front during the early morning hours of July 11th. A few of the thunderstorms strengthened to severe levels, producing large hail over portions of South-Central Wisconsin.</p>				
ROCK COUNTY --- 1.4 N (JVL)ROCK CO ARPT JA [42.64, -89.03]				
	07/23/09 11:20 CST		2K	Lightning
	07/23/09 11:20 CST		0	Source: Newspaper
<p>Lightning struck an Alliant Energy electrical substation, blowing out a circuit. About 800 customers went without power for about one hour.</p>				
ROCK COUNTY --- 2.2 N CLINTON [42.60, -88.87]				
	07/23/09 11:45 CST		0	Lightning
	07/23/09 11:45 CST	1	0	Source: Newspaper
<p>A 44-year-old woman was struck by lightning while standing in the doorway of a barn holding the reins of a horse. She was taken to Beloit Memorial Hospital and treated in the emergency department.</p>				
MARQUETTE COUNTY --- 9.0 SSE MONTELLO [43.68, -89.25]				
	07/23/09 12:18 CST		0	Hail (1.00 in)
	07/23/09 12:18 CST		0	Source: Emergency Manager
<p>Hail up to 1 inch in diameter covered the ground white near the intersection of State Highway 22 and Grouse Avenue near Montello. Gusty winds also brought down small tree branches.</p>				
RACINE COUNTY --- 3.8 SW NORTH CAPE [42.74, -88.12], 1.5 N UNION GROVE [42.70, -88.05]				
	07/23/09 13:50 CST		0	Hail (1.00 in)
	07/23/09 13:58 CST		0	Source: SHAVE Project
<p>Hail, estimated to be 1 inch in diameter, fell in a 2-mile wide swath from southwest of North Cape to north of Union Grove.</p>				
WALWORTH COUNTY --- 4.1 E LA GRANGE [42.80, -88.52]				
	07/23/09 14:00 CST		0	Hail (0.75 in)
	07/23/09 14:30 CST		2K	Source: Public
<p>The public reported that hail, estimated to be 3/4 inch in diameter and driven by gusty thunderstorm winds, damaged corn crops in northeast Walworth County.</p>				
KENOSHA COUNTY --- 1.5 E SILVER LAKE [42.55, -88.14], 2.0 S BRISTOL [42.52, -88.05]				
	07/23/09 14:40 CST		0	Hail (1.00 in)
	07/23/09 14:55 CST		0	Source: Public
<p>Hail, estimated to be 1 inch in diameter, fell in a 2-mile wide swath from 1.5 miles east of Silver lake to 2 miles south of Bristol in Kenosha County.</p>				

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Large-scale atmospheric lift and wind shear associated with a short wave trough combined with an unstable air mass over the region to produce rotating thunderstorms that produced large hail over southern Wisconsin during the afternoon hours of July 23rd.				
LAFAYETTE COUNTY --- 2.0 SW BELMONT [42.71, -90.36], 6.0 SE SHULLSBURG [42.51, -90.15]				
	07/24/09 16:05 CST		0.50M	Hail (2.75 in)
	07/24/09 16:05 CST		6.42M	Source: Law Enforcement
A 5-mile wide hail swath damaged crops (corn, soy beans, wheat, and alfalfa), vehicles (windows and dents), and at least 25 homes (windows, siding, and roofs). This hail swath merged with a another, later, hail swath, with the merger southeast of Shullsburg. Some fields southeast of Shullsburg were totally stripped by the hail stones.				
Newspaper accounts indicated that the two hail swaths resulted in damage to 20,000 acres of corn and 10,000 acres of soybeans in Lafayette County. Using an avarge of 135 bushes of corn per acre with a price of \$3.45 per bushels yields a corn loss of \$9.315 M. Using an average of 38 bushels of soybeans per acre, and a price of \$9.25 per bushel yields a soybean loss of \$3.515 M. These loss estimates were divided by two and assigned to the two hail swaths equally.				
LAFAYETTE COUNTY --- 4.0 W BELMONT [42.73, -90.41], 5.0 SSW BELMONT [42.66, -90.37]				
	07/24/09 16:05 CST		10K	Thunderstorm Wind (EG 78 kt)
	07/24/09 16:10 CST		0	Source: Law Enforcement
Powerful thunderstorm winds toppled dozens of trees and damaged a shed.				
LAFAYETTE COUNTY --- 2.9 SSW SEYMOUR CORNERS [42.63, -90.27], 2.2 NNE SHULLSBURG [42.60, -90.22]				
	07/24/09 16:12 CST		0.10M	Tornado (EF0, L: 3.36 mi , W: 75 yd)
	07/24/09 16:17 CST		10K	Source: NWS Storm Survey
A weak tornado spun up a little north of the intersection of CTH Q and Prairie Rd. (about 4 miles northwest of Shullsburg). It proceded to move on a 145 degree bearing southeast to just southeast of the intersection of CTH U and Jackson Rd. a couple miles north-northeast of Shullsburg. Major damage was inflicted on a barn and storage pole shed, several trees were uprooted or snapped, and some minor damage was inflicted on a corn field. The specific starting and ending GPS coordinates were 42.63011/-90.26829 and 42.59963/-90.21671, and the damage intensity was based on DI 1 (SBO), DOD 8. The average width was about 30 yards. The wind was estimated to be about 105 mph.				
LAFAYETTE COUNTY --- 1.0 W BENTON [42.57, -90.40], 6.0 SE SHULLSBURG [42.51, -90.15]				
	07/24/09 17:18 CST		0.50M	Hail (2.75 in)
	07/24/09 17:35 CST		6.42M	Source: Law Enforcement
A 5-mile wide hail swath damaged crops (corn, soy beans, wheat, and alfalfa), vehicles (dents and broken windows), and at least 25 homes (roofs, windows, and siding). This swath merged with another hail swath from an ealier storm that traveled from Northwest Lafayette County to southeast of Shullsburg. Some farm fiels were stripped to nothing by the hail stones.				
Newspaper accounts indicated that the two hail swaths resulted in damage to 20,000 acres of corn and 10,000 acres of soybeans in Lafayette County. Using an avarge of 135 bushes of corn per acre with a price of \$3.45 per bushels yields a corn loss of \$9.315 M. Using an average of 38 bushels of soybeans per acre, and a price of \$9.25 per bushel yields a soybean loss of \$3.515 M. These loss estimates were divided by two and assigned to the two hail swaths equally.				
LAFAYETTE COUNTY --- 2.0 SW BENTON [42.55, -90.41], 6.0 SE SHULLSBURG [42.51, -90.15]				
	07/24/09 17:18 CST		0	Thunderstorm Wind (EG 78 kt)
	07/24/09 17:35 CST		0	Source: Law Enforcement
Powerful thunderstorm winds toppled dozens of trees.				
LAFAYETTE COUNTY --- 1.8 NNE NEW DIGGING [42.55, -90.31], 3.4 S SHULLSBURG [42.52, -90.24]				
	07/24/09 17:32 CST		50K	Tornado (EF0, L: 4.16 mi , W: 50 yd)
	07/24/09 17:40 CST		10K	Source: NWS Storm Survey
A weak tornado spun up about 1/3 mile south-southwest of the intsection of STH 11 and CTH I, or roughly a couple northeast of New Diggings. It proceded to move on a 122 degree bearing southeast to about 1/3 mile east of the intersection of CTH O and Blackhawk Rd., about 3.5 miles southeast of Shullsburg. A small pole shed was destroyed and small portions of a side-wall and roof of a home were peeled off. Otherwise several trees were uprooted or snapped. The specific starting and ending GPS coordinates were 42.55270/-90.31193 and 42.52115/-90.24236, and the damage intensity was based on DI 1 (SBO), DOD 6. The average width was about 25 yards. The wind was estimated to be about 90 mph.				
LAFAYETTE COUNTY --- 4.0 NW NEW DIGGING [42.57, -90.39], 3.0 SE SHULLSBURG [42.54, -90.19], 3.0 S SHULLSBURG [42.53, -90.23], 2.0 WNW NEW DIGGING [42.54, -90.37]				

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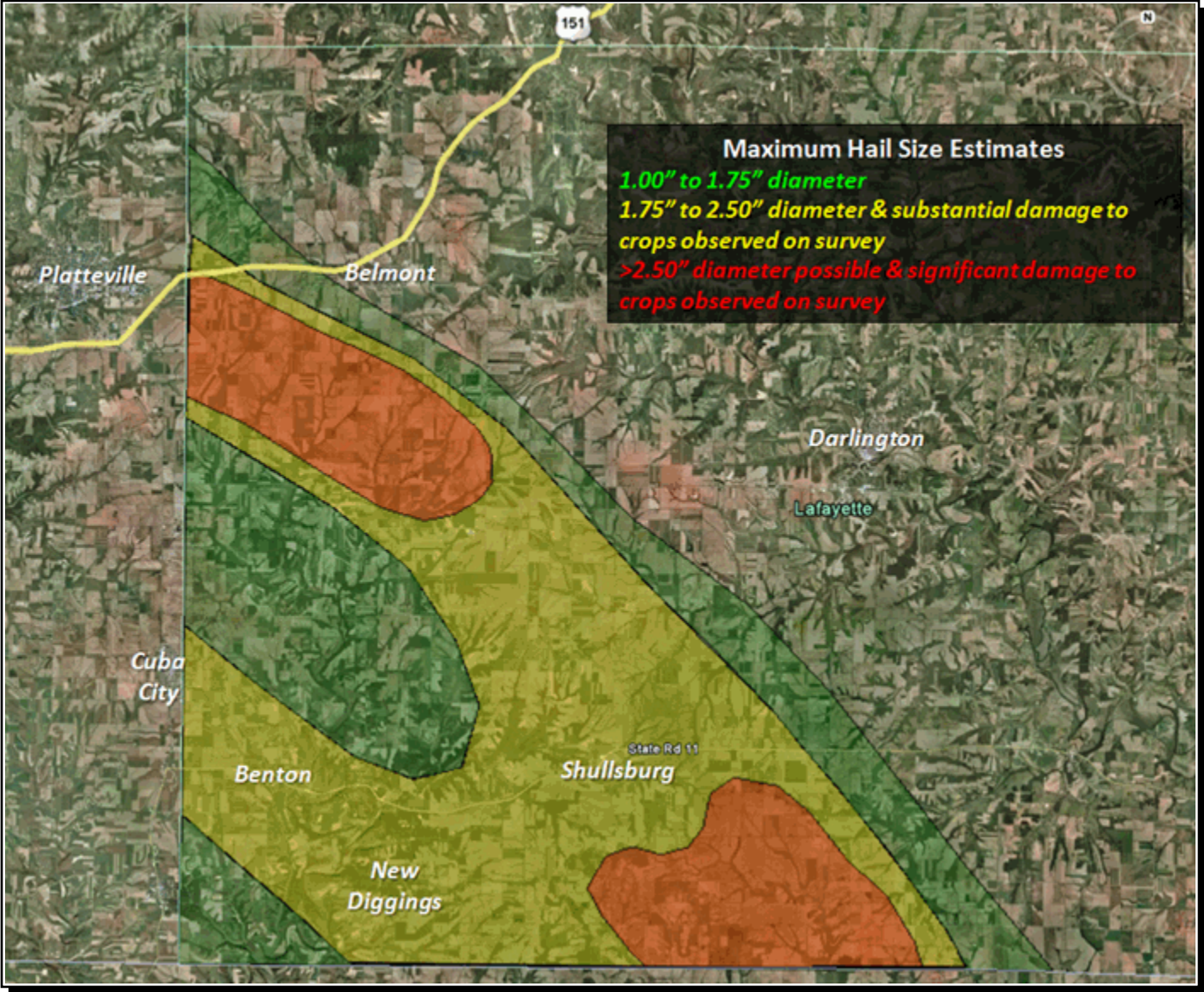
Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
	07/24/09 18:00 CST		30K	Flash Flood (due to Heavy Rain)
	07/24/09 20:30 CST		0	Source: Law Enforcement

Repeated heavy rains from a couple thunderstorms resulted in flash flooding in the area from New Diggings to southeast of Shullsburg. All rivers and streams in this area rose above flood stage, and many roads had water over them. Some roads had depths of 2 to 3 feet of fast-flowing water. Several of the gravel shoulders were washed out, and lots of vegetative debris was left on some roads.

(WI-Z069) ROCK

07/24/09 18:45 CST	0	High Wind (MAX 50 kt)
07/24/09 19:15 CST	0	

A cold front crossed Wisconsin during the late afternoon and evening hours of July 24th. Large scale lift and deep layer wind shear associated with upper level low pressure moving into the region led to the development of supercell thunderstorms in southwest Wisconsin. Severe thunderstorm wind gusts, large hail, and two tornadoes were reported in Lafayette County with the supercell storms.



This is an image showing the two hail swaths that severely damaged crops in Lafayette County. Note how the individual hail swaths merge southeast of Shullsburg where crops were shredded to nothing.

MARQUETTE COUNTY --- WESTFIELD [43.88, -89.48], MONTELO [43.80, -89.32]

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Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
	07/27/09 16:06 CST		30K	Thunderstorm Wind (EG 56 kt)
	07/27/09 16:40 CST		0	Source: Law Enforcement

Severe thunderstorms produced damaging winds estimated up to 65 mph that caused extensive tree damage in a 4 mile wide swath from Westfield to Montello. Trees fell on two homes at Buffalo Lake causing roof damage. Several power lines were damaged by tree debris and there were scattered power outages in the Montello area. Most likely this wind damage was associated with the forward flank downdraft of the supercell thunderstorm that generated a F1 tornado in Marquette County a few minutes later.

MARQUETTE COUNTY --- 2.1 WNW GLENOAK [43.76, -89.37], 5.4 SE GLENOAK [43.70, -89.25]

07/27/09 16:48 CST	10K	Tornado (EF1, L: 7.41 mi , W: 150 yd)
07/27/09 17:12 CST	10K	Source: NWS Storm Survey

A tornado spun up about 2 miles west-northwest of Glen Oak (about 3 miles southwest of Montello), roughly mid-way between Williams Lake and Metcalf Lake. It proceeded to move southeast on a 150 degree bearing to where Grand Ave. crosses into Green Lake County. This weak tornado eventually dissipated about 2 miles northwest of Dalton in southwest Green Lake County. Mainly tree damage was noted along the track in Marquette County. However, one small pole shed lost some roof shingles, and minor roof damage was inflicted upon two mobile trailer homes along Grand Ave. Minor damage to corn crops was noted as well. The starting ending GPS coordinates in Marquette County were 43.76112/-89.36820 and 43.71007, with a damage indicator of DI 27 (TH), DOD 3. The wind speed was estimated at 95 mph. The average path width was about 75 yards.

GREEN LAKE COUNTY --- 3.5 NNW DALTON [43.70, -89.23]

07/27/09 17:10 CST	0	Hail (1.50 in)
07/27/09 17:10 CST	5K	Source: Emergency Manager

An emergency management official reported hail up to 1.50 inches in diameter covered the ground on Grand Ave. on a farm about about 3 miles northwest of the Village of Dalton. Hail stones still measured 1 inch in diameter 18 hours later at this location which was shaded by trees and a corn crop. Newspaper reports indicated that some corn fields were shredded by the hail, therefore an estimated loss estimate of \$5000 was entered with this event.

GREEN LAKE COUNTY --- 4.2 NNW DALTON [43.70, -89.25], 2.0 NNW DALTON [43.68, -89.22]

07/27/09 17:12 CST	0	Tornado (EF0, L: 2.15 mi , W: 100 yd)
07/27/09 17:16 CST	2K	Source: NWS Storm Survey

This tornado segment was a continuation of a EF1 tornado what spun up about 3 miles southwest of Montello in Marquette County. It moved southeast and crossed into Green Lake County where Grand Ave. enters the county. It dissipated about 2 miles north-northwest of the Village of Dalton. Damage was limited mainly to trees (uprooted or branches snapped), but there was some minor damage to a corn field.

GREEN LAKE COUNTY --- DALTON [43.65, -89.20]

07/27/09 17:22 CST	0	Thunderstorm Wind (EG 65 kt)
07/27/09 17:22 CST	0	Source: Law Enforcement

Police officials reported tree damage in the Village of Dalton due to damaging thunderstorm wind gusts.

IOWA COUNTY --- 4.0 S AVOCA [43.12, -90.52]

07/27/09 17:25 CST	0	Funnel Cloud
07/27/09 17:25 CST	0	Source: Trained Spotter

COLUMBIA COUNTY --- CAMBRIA [43.55, -89.10]

07/27/09 17:44 CST	0	Hail (0.88 in)
07/27/09 17:44 CST	0	Source: Trained Spotter

A trained weather spotter reported hail estimated at 0.88 inch in diameter in the Village of Cambria.

IOWA COUNTY --- 5.0 SSW AVOCA [43.11, -90.56]

07/27/09 17:45 CST	0	Thunderstorm Wind (EG 50 kt)
07/27/09 17:45 CST	0	Source: NWS Storm Survey

A NWS storm survey team found a few uprooted trees and other minor tree damage produced by damaging thunderstorm wind gusts.

COLUMBIA COUNTY --- 1.0 N CAMBRIA [43.56, -89.10], CAMBRIA [43.55, -89.10]

07/27/09 17:55 CST	0	Hail (1.00 in)
07/27/09 17:55 CST	0	Source: Law Enforcement

Police officials estimated hail up to 1 inch in diameter fell in a 1/2 mile wide swath from one mile north of Cambria near State Highway 33 to the Village of Cambria.

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IOWA COUNTY --- LINDEN [42.92, -90.27]				
	07/27/09 18:05 CST		0	Thunderstorm Wind (EG 50 kt)
	07/27/09 18:05 CST		0	Source: Emergency Manager

Emergency management officials reported large trees uprooted by severe thunderstorm wind gusts in the Village of Linden.

IOWA COUNTY --- 4.0 W AVOCA [43.18, -90.60], AVOCA [43.18, -90.52], 5.0 E HIGHLAND [43.05, -90.28], 3.0 NNW HIGHLAND [43.09, -90.40]				
	07/27/09 18:30 CST		75K	Flash Flood (due to Heavy Rain)
	07/27/09 21:00 CST		0	Source: Emergency Manager

Heavy rains from severe thunderstorms produced flash flooding that washed out the shoulders of several roads and driveways, causing \$75,000 of damage. The AWOS unit at the Mineral Point Airport recorded 1.21 inches of rain between 1830 and 1900 CST.

LAFAYETTE COUNTY --- 3.6 NNW DARLINGTON [42.73, -90.15], DARLINGTON [42.68, -90.12]				
	07/27/09 18:40 CST		0	Thunderstorm Wind (EG 65 kt)
	07/27/09 18:50 CST		15K	Source: Emergency Manager

Emergency management officials reported tree and crop damage due to severe thunderstorm wind gusts in a 100-yard wide swath.

LAFAYETTE COUNTY --- 2.0 NE BELMONT [42.75, -90.30], 6.0 ENE BELMONT [42.76, -90.22], 6.0 ESE BELMONT [42.70, -90.22], 2.0 SSE BELMONT [42.70, -90.31]				
	07/27/09 19:00 CST		30K	Flash Flood (due to Heavy Rain)
	07/27/09 22:00 CST		0	Source: Emergency Manager

Heavy rains from severe thunderstorms produced flash flooding that washed out the gravel shoulders of roads in and near Belmont in Lafayette County. Damage due to the flash flooding totaled \$30,000. Rainfall estimates from National Weather Service radar totaled 2 to 3 inches during this time.

LAFAYETTE COUNTY --- 2.5 NE GRATIOT [42.61, -89.99], 2.5 NE GRATIOT [42.61, -89.99]				
	07/27/09 19:10 CST		0	Tornado (EF0, L: 0.09 mi , W: 25 yd)
	07/27/09 19:11 CST		0	Source: NWS Storm Survey

A NWS storm survey team found evidence of a brief tornado about 2 miles northeast of the Village of Gratiot on a farm just southwest of the intersection of STH 78 and West Chruch Rd. It moved east-southeast on a 95 degree bearing and dissipated on STH 78. Damage was limited mainly to trees (uprooted or branches snapped). The beginning/ending GPS coordinates were 41.60841/-89.99102 and 42.60773/-89.98941 with a damage indicator of DI 27 (TH), DOD 3. The winds were estimated at about 80 mph, and the average path width about 15 yards.

Deep layer shear with a short wave trough interacted with instability ahead of a surface trough trailing from a surface low in central Wisconsin. The instability and shear produced supercell thunderstorms in southern Wisconsin along and ahead of the surface trough. The severe thunderstorms produced damaging winds, large hail and tornadoes. Heavy rains accompanying the severe thunderstorms produced flash flooding in Lafayette County.